

Application Number 09/871,563
Responsive to Office Action mailed June 23, 2005

IN THE CLAIMS:

1. (Currently amended) A modulator, including a multiplexing/coding chain, operable with a first memory in which transport channels, comprised of transport blocks, are stored and a second memory, comprising:

a concatenator for reading transport blocks from the first memory, removing bits not intended for transmission from the read transport blocks, and storing the concatenated transport blocks in the second memory;

a channel coder for coding the transport channels from the second memory, wherein the coding of subsets of the transport channels can be repeated; and

an interleaver for receiving the coded transport channels and selecting subsets of each coded transport channel and the repeated coded transport channels to produce a coded interleaved data stream.

Claims 2-3 (Canceled)

4. (Currently amended) The multiplexing/coding chain modulator of claim 3 1, further comprising a cyclic redundancy check (CRC) generator for computing CRCs with the read transport blocks and appending the CRCs to the concatenated transport blocks stored in the second memory.

5. (Currently amended) The multiplexing/coding chain modulator of claim 4, further comprising a ciphering block for ciphering the transport blocks to be concatenated and stored in the second memory.

6. (Currently amended) The multiplexing/coding chain modulator of claim 3 1, wherein the concatenated transport blocks are stored according to descending transmission time intervals in the second memory.

Claims 7-13 (Canceled)

Application Number 09/871,563
Responsive to Office Action mailed June 23, 2005

14. (Original) A multiplexing/coding chain, operable with a first memory in which transport channels, comprised of transport blocks, are stored and a second memory, comprising:
a concatenator for reading transport blocks from the first memory, removing bits not intended for transmission from the read transport blocks, and storing the concatenated transport blocks in the second memory;

a channel coder for coding the transport channels from the second memory, wherein the coding of subsets of the transport channels can be repeated; and

an interleaver for receiving the coded transport channels and selecting subsets of each coded transport channel and the repeated coded transport channels to produce a coded, interleaved data stream.

15. (Original) The multiplexing/coding chain of claim 14, further comprising a cyclic redundancy check (CRC) generator for computing CRCs with the read transport blocks and appending the CRCs to the concatenated transport blocks stored in the second memory.

16. (Original) The multiplexing/coding chain of claim 15, further comprising a ciphering block for ciphering the transport blocks to be concatenated and stored in the second memory.

17. (Original) The multiplexing/coding chain of claim 14, wherein the concatenated transport blocks are stored according to descending transmission time intervals in the second memory.

18. (Original) The multiplexing/coding chain of claim 14, further comprising a code block segmentor for segmenting transport channels greater than the channel coder block size and padding transport channels smaller than the channel coder block size.

19. (Original) The multiplexing/coding chain of claim 14, further comprising a radio frame equalizer for adding filler bits to the output of the channel coder.

Application Number 09/871,563
Responsive to Office Action mailed June 23, 2005

20. (Original) The multiplexing/coding chain of claim 14, further comprising a rate matcher for puncturing and repeating bits of the coded, interleaved data stream to conform to data rates for the transport channels to produce a rate-matched, coded, interleaved data stream.

21. (Original) The multiplexing/coding chain of claim 20, further comprising a second interleaver for interleaving the rate-matched, coded, interleaved data stream to produce a coded, composite transport channel.

22. (Currently amended) An access terminal, for use in a CDMA system, including a multiplexing/coding chain, operable with a first memory in which transport channels, comprised of transport blocks, are stored and a second memory, comprising:

a concatenator for reading transport blocks from the first memory, removing bits not intended for transmission from the read transport blocks, and storing the concatenated transport blocks in the second memory;

a channel coder for coding the transport channels from the second memory, wherein the coding of subsets of the transport channels can be repeated; and

an interleaver for receiving the coded transport channels and selecting subsets of each coded transport channel and the repeated coded transport channels to produce a coded, interleaved data stream.

Claim 23-25 (Canceled)

26. (Currently amended) A W-CDMA system, including a multiplexing/coding chain, operable with a first memory in which transport channels, comprised of transport blocks, are stored and a second memory, comprising:

a concatenator for reading transport blocks from the first memory, removing bits not intended for transmission from the read transport blocks, and storing the concatenated transport blocks in the second memory;

a channel coder for coding the transport channels from the second memory, wherein the coding of subsets of the transport channels can be repeated; and

Application Number 09/871,563
Responsive to Office Action mailed June 23, 2005

an interleaver for receiving the coded transport channels and selecting subsets of each coded transport channel and the repeated coded transport channels to produce a coded, interleaved data stream.

27. (Canceled)

28. (Currently amended) A method of modulation comprising:
reading transport blocks stored in a first memory; and
writing only those bits of the transport blocks intended for transmission into a second memory in concatenated form
channel coding transport channels comprised of said transport blocks stored in the second memory;
repeating the channel coding step;
selecting subsets from each of the repeated channel coding outputs to produce a coded, interleaved data stream.

29. (Original) The method of claim 28, further comprising:
computing a CRC for each of the transport blocks; and
appending the CRCs to the concatenated transport blocks when writing to the second memory.

30. (Original) The method of claim 28, further comprising ciphering the concatenated transport blocks prior to storage in the second memory.

31. (Canceled)

32. (Currently amended) The method of claim ~~31~~ 28, further comprising channel code block segmentation wherein transport channels larger than channel code blocks are segmented and transport channels smaller than channel code blocks are padded.

Application Number 09/871,563
Responsive to Office Action mailed June 23, 2005

33. (Currently amended) The method of claim 31 ~~28~~, further comprising radio frame equalization wherein filler bits are inserted into the output of the channel coding step.

34. (Currently amended) The method of claim 31 ~~28~~, further comprising rate matching wherein bits are punctured and repeated to conform to data rates for the transport channels.

35. (Original) The method of claim 34, further comprising interleaving the output of the rate matching step.

36. (New) The modulator of claim 1, further comprising a code block segmentor for segmenting transport channels greater than the channel coder block size and padding transport channels smaller than the channel coder block size.

37. (New) The modulator of claim 1, further comprising a radio frame equalizer for adding filler bits to the output of the channel coder.

38. (New) The modulator of claim 1, further comprising a rate matcher for puncturing and repeating bits of the coded, interleaved data stream to conform to data rates for the transport channels to produce a rate-matched, coded, interleaved data stream.

39. (New) The modulator of claim 38, further comprising a second interleaver for interleaving the rate-matched, coded, interleaved data stream to produce a coded, composite transport channel.

40. (New) The access terminal of claim 22, further comprising a cyclic redundancy check (CRC) generator for computing CRCs with the read transport blocks and appending the CRCs to the concatenated transport blocks stored in the second memory.

41. (New) The access terminal of claim 40, further comprising a ciphering block for ciphering the transport blocks to be concatenated and stored in the second memory.

Application Number 09/871,563
Responsive to Office Action mailed June 23, 2005

42. (New) The access terminal of claim 22, wherein the concatenated transport blocks are stored according to descending transmission time intervals in the second memory.

43. (New) The access terminal of claim 22, further comprising a code block segmentor for segmenting transport channels greater than the channel coder block size and padding transport channels smaller than the channel coder block size.

44. (New) The access terminal of claim 22, further comprising a radio frame equalizer for adding filler bits to the output of the channel coder.

45. (New) The access terminal of claim 22, further comprising a rate matcher for puncturing and repeating bits of the coded, interleaved data stream to conform to data rates for the transport channels to produce a rate-matched, coded, interleaved data stream.

46. (New) The access terminal of claim 45, further comprising a second interleaver for interleaving the rate-matched, coded, interleaved data stream to produce a coded, composite transport channel.

47. (New) The W-CDMA system of claim 26, further comprising a cyclic redundancy check (CRC) generator for computing CRCs with the read transport blocks and appending the CRCs to the concatenated transport blocks stored in the second memory.

48. (New) The W-CDMA system of claim 47, further comprising a ciphering block for ciphering the transport blocks to be concatenated and stored in the second memory.

49. (New) The W-CDMA system of claim 26, wherein the concatenated transport blocks are stored according to descending transmission time intervals in the second memory.

Application Number 09/871,563
Responsive to Office Action mailed June 23, 2005

50. (New) The W-CDMA system of claim 26, further comprising a code block segmentor for segmenting transport channels greater than the channel coder block size and padding transport channels smaller than the channel coder block size.

51. (New) The W-CDMA system of claim 26, further comprising a radio frame equalizer for adding filler bits to the output of the channel coder.

52. (New) The W-CDMA system of claim 26, further comprising a rate matcher for puncturing and repeating bits of the coded, interleaved data stream to conform to data rates for the transport channels to produce a rate-matched, coded, interleaved data stream.

53. (New) The W-CDMA system of claim 52, further comprising a second interleaver for interleaving the rate-matched, coded, interleaved data stream to produce a coded, composite transport channel.